

POPOV, Yu.A.

Systematic position and study of Jurassic representatives of water
Hemiptera of the Karataviella genus. Paleont.zhur. no.1:105-110
'62. (MIRA 15:3)

1. Paleontologicheskii institut AN SSSR.
(Hemiptera)

S/188/62/000/002/004/013
B125/B102

AUTHORS: Kerimov, B. K., Popov, Yu. A., Loskutov, Yu. M., Galkina, L. P.

TITLE: Polarization properties of μ^+ -meson decay electrons

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1962, 29-35

TEXT: The polarization properties of electrons from the $\mu^+ \rightarrow e^+ + \gamma + \nu$ decay of a longitudinally polarized charged muon at rest were investigated with two variants of weak four-fermion V-A interactions. In the Lee-Yang version of the interaction Hamiltonian, the transverse polarization of electrons polarized in the plane perpendicular to that of decay is sensitive to a possible non-conservation of time parity; in the Feynman-Gell-Mann version, however, there is no polarization. If the state of polarization of decay electrons is described by $\psi_e = \sum_{s_e} g_{s_e} \psi_{s_e}$, the probability of electron production is given by

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Polarization properties of ...

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$$dW = \frac{d\vec{k}_e}{(2\pi)^4 c \hbar^2 24} \left\{ \sum_{s_e} g_{s_e}^+ g_{s_e} W_{s_e} + (g_1^+ g_{-1} + g_1 g_{-1}^+) \frac{1}{2} W_3 + \right. \\ \left. + i (g_1 g_{-1}^+ - g_{-1} g_1^+) \frac{1}{2} W_2 \right\}, \quad (8) \text{ with}$$

$$W_{s_e} = \frac{1}{2} (1 - \eta) (1 \mp s_e \beta_e) \{ (q^2 - 3k_e^2 \pm 2s_e q k_e) (3 - s_e \cos \theta) + \\ + 8k_e (k_e \mp s_e q) \}, \quad (\text{cm. [5]}),$$

$$W_3 = \pm (1 - \eta) (q^2 - k_e^2) \frac{k_{0e}}{K_e} \sin \theta, \quad (9),$$

$$W_2 = 0.$$

in the Feynman-Gell-Mann version, and with

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Polarization properties of ...

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$$W_{s_e} = [(1 \pm s_e \beta_e \gamma_l) [(q^2 - 3k_e^2) (3 - s_e \cos \theta) + 8k_e^2] + \\ + 2(1 + s_e \cos \theta) q k_e (\beta_e \pm s_e \gamma_l) + \gamma_{11} \frac{k_{0e}}{K_e} (k_e^2 - q^2) (3 - s_e \cos \theta)], \quad (10),$$

$$W_3 = \pm 2 \sin \theta \left[\frac{k_{0e}}{K_e} (q^2 - k_e^2) - \eta_1 (2\beta_e k_e q + k_e^2 + q^2) \right],$$

$$W_2 = 2 \sin \theta (\gamma_{12} \beta_e) (k_{0\mu}^2 - k_{0e}^2),$$

in the Lee-Yang version.

$$\xi = G_A^\dagger G_A + G_V^\dagger G_V, \quad \gamma_l = \frac{1}{\xi} (G_A^\dagger G_V + G_V^\dagger G_A),$$

$$\gamma_{11} = \frac{i}{\xi} (G_V^\dagger G_V - G_A^\dagger G_A), \quad \gamma_{12} = \frac{i}{\xi} (G_V^\dagger G_A - G_A^\dagger G_V), \quad (11).$$

$$q = k_{0\mu} - K_e, \quad \beta_e = \frac{k_e}{K_e} = \frac{v_e}{c}, \quad \cos \theta = (\vec{s}_\mu \vec{k}_e^0), \quad \frac{k_{0e}}{K_e} = \frac{m_0 c^2}{E_e},$$

The square of the modulus of the constant g_{B_e} yields the probability of the electron being in the ψ_{s_e} state ($s_e = \pm 1$). $\vec{s}_\mu = s_\mu \vec{k}_\mu^0$ is the spin vector

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Polarization properties of ...

of a muon at rest. The transverse polarizations P_3 and P_2 of electrons polarized in the decay plane ($\varphi=0$) and perpendicularly thereto ($\varphi=\pi/2$), respectively, are given by $P_{3,2} = W_{3,2}/(W_1+W_{-1})$. $W_0 = W_1+W_{-1}$ is the total electron-decay probability, and $P_1 = (W_1-W_{-1})/W_0$ is the

longitudinal electron polarization. The relation $\sqrt{P_1^2+P_2^2+P_3^2} = 1$ is valid for a completely polarized electron beam. If the beam is partly formed by unpolarized electrons, the fraction P_0 of the unpolarized state

is given by $P_0 = 1 - \sqrt{P_1^2+P_2^2+P_3^2}$. The polarization of the decay electrons is closely related to the ratio between the constants G_A and G_V . As a phase shift ($G_A = G_V e^{-i\delta}$) exists between constants with equal modulus, $\eta = \cos \psi$, $\eta_1 = 0$, and $\eta_2 = \sin \psi$. If $\delta = \pi$ ($G_A = -G_V$) (V-A interaction), the Feynman-Gell-Mann and the Lee-Yang versions are equivalent. If $\delta \neq \pi$, the following is found: In the Lee-Yang version, part of the high-energy

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S/188/62/000/002/004/013
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Polarization properties of ...

respectively. If $\hat{O} = \pi$, τ is the same in both versions. P_2 is very sensitive to phase shifts. It is noted that the investigation of transverse polarization is an appropriate means for choosing the interaction Hamiltonian. A. A. Sokolov is thanked for discussions and advice. The English-language reference is: Sokolov A. A. Nucl. Phys., 9, 420, 1959.

ASSOCIATION: Kafedra statisticheskoy fiziki i mekhaniki (Department of Statistical Physics and Mechanics)

SUBMITTED: May 5, 1961

Card 6/6

POPOV, Yu. I.

Dynamic transistorized trigger networks. Vych. tekhn. no. 3:61-83
'62. (Pulse circuits) (Transistor circuits) (MIRA 15:6)

S/188/62/000/004/005/010
B108/B102

24.0.180
AUTHORS: Milant'yev, V. P., Popov, Yu. A.

TITLE: Thermal fluctuations in a plasma

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika,
astronomiya, no. 4, 1962, 55 - 59

TEXT: The space-time correlation functions of a plasma in equilibrium are calculated, taking account of collisions between electrons and stationary ions through an effective collision frequency ν (Glansdorf P. Bull. cl. sci. Acad. Roy. Belg., 45, no. 6, 575, 1959). Random forces $\vec{F}(\vec{r}, t)$ are introduced into the hydrodynamic equations. The fluctuations in electrical field and plasma density are expressed in terms of velocity fluctuations easy to calculate by the Gibbs method. It is shown that the spectrum does not completely vanish when the electrical fluctuations reach plasma frequency. Consequently, ν can be calculated by measuring the noise level on plasma frequency.

ASSOCIATION: Kafedra statisticheskoy fiziki i mekhaniki (Department of
Statistical Physics and Mechanics)

Card 1/2

Thermal fluctuations in a plasma

S/188/62/000/004/005/010
B108/B102

SUBMITTED: December 7, 1961

Card 2/2

44927

S/745/62/000/004/002/007
D201/D308

9.7140

AUTHORS: Popov, Yu. A. and Tatur, Yu. G.

TITLE: Circuits of a fast semiconductor-controlled ferrite memory device

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Vychislitel'naya tekhnika, no. 4, 1962, 16-26

TEXT: The authors describe and analyze the operation of the main circuits in a direct access, small storage capacity (64 to 128 numbers) memory, every current shaping wire having in its circuit a power transistor with four ferrite cores for every two bits of the code of the stored number. This makes the impedance of the ferrite line constant. The signals from every pair of number bits are applied to the decoder and hence to the read amplifiers from which, through commutating diodes, they go over to the output number register. The arrangement operates with regeneration, which is obtained by means of special wires, linking the read directly with write amplifiers. According to calculations the two write currents

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Circuits of a fast ...

S/745/62/000/004/002/007
D201/D308

in the cores are 0.7 A each and the corresponding amplifier has two stages with a HF power transistor in the output, both in common emitter connection. The read amplifier has a single П15 (P15) transistor first stage and a HF power transistor in the output. Both amplifiers use interstage pulse transformers. A prototype memory, using BT-1 (VT-1) ferrite cores, with a storage capacity of 32 forty-bit numbers, has been operated at reading speeds up to 700 kc/s. This speed can be increased up to 1 Mc/s by immersing the matrix into oil or by air cooling, which makes the device more complex and, therefore, less reliable. There are 6 figures. X

Card 2/2

MILANT'YEV, V.P.; POPOV, Yu.A.

Thermal fluctuations of a plasma. Vest. Mosk.un.Ser.3:
Fiz, astron. 17 no.4:55-59 J1-Ag '62. (MIRA 15:9)

1. Kafedra statisticheskoy fiziki i mekhaniki Moskovskogo
universiteta.

(Plasma (Ionized gases))

POPOV, Yu.A.

New method for plotting the regulation characteristics curve
according to the composition of the mixture. Avt.prom. 28
no.10:10-13 0 '62. (MIRA 15:9)

1. Nauchno-issledovatel'skiy i eksperimental'nyy institut
avtomobil'nogo elektrooborudovaniya i priborov.
(Automobiles--Fuel systems)

2
TOPICHEV, A.V. ^(deceased) ~~KORSAK~~, YU.V., POPOV, YU.A., ROSENSTEIN, L.D.

Synthesis and investigation of photoelectric properties of polyazines
and poly-schiff bases.

Report submitted for the International Symposium of Macromolecular chemistry
Paris, 1-6 July 63

S/168/63/000/001/C1C/014
B164/B102

AUTHORS: Kerimov, B. K., Popov, Yu. A., Loskutov, Yu. M.

TITLE: Electron polarization on μ^+ meson decay (II)

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 1, 1963, 62-65

TEXT: In continuation of their study of the decay probability of resting longitudinally polarized μ^+ mesons ($\mu^+ \rightarrow e^+ + \nu + \bar{\nu}$) (VMF no. 2, 29, 1962) the authors calculate the decay probability of moved longitudinally polarized μ^+ mesons and the degree of longitudinal (P_1) and transverse (P_2 and P_3) polarization of the electrons produced. The calculations were made on the basis of the Hamilton operator for V-A interaction given by Yang and Lee (Phys. Rev. 105, 1671, 1957) and by Feynman and Gell-Mann (Phys. Rev. 109, 193, 1958). The proportion of the non-polarized electrons in the beam is calculated from

$$P_0 = 1 - \sqrt{P_1^2 + P_2^2 + P_3^2}$$

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Electron polarization on ...

S/168/63/CCC/CC1/010/014
B164/B102

The expressions obtained are equivalent for the coupling constants $G_A = -G_V$ (V-A interaction). In this case (Feynman-Gell-Mann) $P_0 = 0$. For $G_A = G_V e^{-i\delta}$, $\delta \neq \pi$, different expressions are obtained. It is shown that the measurement of the transverse polarization P_2 and P_3 of the electrons and of P_0 gives indications of the interrelation between the coupling constants and, therefore, of the time reversal invariance of the weak interaction. ✓

ASSOCIATION: Kafedra statisticheskoy fiziki i mekhaniki (Department of Statistical Physics and Mechanics)

SUBMITTED: June 23, 1962

Card 2/2

BEKKER-MIGDISOVA, Ye.E.; POPOV, Yu.A.

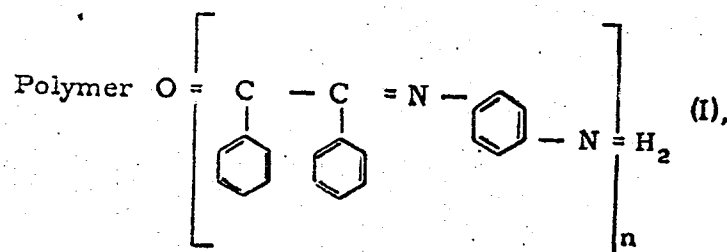
Some new Heteroptera from the Jurassic of the Kara-Tau.
Paleont. zhur. no.2:74-82 '63. (MIRA 16:8)

1. Paleontologicheskii institut AN SSSR.
(Kara-Tau-Heteroptera, Fossil)

POPOV, VU. A.
AID Nr. 992-9 18 June

ELECTROPHYSICAL PROPERTIES OF POLYMERIC SCHIFF BASES OF
BENZIL AND P-PHENYLENEDIAMINE (USSR)

Davydov, B. E., Yu. A. Popov, L. V. Prokof'yeva, and L. D. Rozenshtyn.
IN: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4,
Apr 1963, 759-761.
S/962/63/000/004/017/022



representative of a new class of organic semiconductors -- Schiff bases with
a conjugated bond system -- has been synthesized, and its electric conduc-
tion and photoconduction have been studied, at the Institute of Petrochemical

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AID Nr. 992-9 18 June

ELECTROPHYSICAL PROPERTIES [Cont'd]

S/062/63/000/004/017/022

Synthesis and the Institute of Semiconductors, both Academy of Sciences USSR. Polymer I, prepared by bulk polycondensation of benzil with p-phenylenediamine at 250°C in an inert atmosphere, is dark brown and is soluble in dimethylformamide, phenol, and formic, acetic, and phosphoric acids. X-ray analysis showed it to have a crystalline structure. Its molecular weight is 900, corresponding to $n = 3$ or 4. The electric conductivity of molded specimens of I was measured in a vacuum (10^{-4} mm Hg). The temperature dependence of conductivity obeyed the exponential law. The energy of activation of conductivity ϵ_T and the preexponential factor σ_0 were found to be $\epsilon_T = 1.08$ eV, $\sigma_0 = 8.5 \cdot 10^{-4} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ in the 90 to 115°C range and 0.45 eV, $4.0 \cdot 10^{-8} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ in the 60 to 90°C range; conductivity at 20°C was $\sigma_{20} = 5 \cdot 10^{-12} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$. The photoconduction of thin films of I, deposited from dimethylformamide at 10^{-5} to 10^{-4} mm Hg onto quartz plates

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AID Nr. 992-9 18 June

ELECTROPHYSICAL PROPERTIES [Cont'd]

8/062'63/000/004/017/022

with platinum electrodes separated by a 1-mm gap, was induced by irradiation with white light. The photocurrent of I at 1000 to 1500 v/cm obeyed Ohm's law. The lux-ampere characteristic was described by $i = L^n$, where n was 0.5 to 0.6 in the experiment. The photocurrent was exponentially dependent on temperature: $i = e^{-\epsilon_{ph}/kT}$, where ϵ_{ph} the thermal energy of photocurrent activation, was 0.19 ev. The ϵ_{ph} was determined from reversible measurements in the 20 to 75°C range. Thus, the photoelectric properties of I were similar to those of previously studied organic semiconductors. However, the photocurrent kinetics of I was characterized by pronounced polarization phenomena.

[NI]

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POPOV, Yu.A.

Theory of bosons with zero rest mass. Izv. vys. ucheb. zav.; fiz.
no.5:3-5 '63. (MIRA 16:12)

1. Universitet druzhby narodov imeni Patrisa Lumumby.

POPOV, Yu.A.

Fundamental characteristics of digital measuring instruments.

Izm. tekhn. no.7:20-22 J1 '63.

(MIRA 16:8)

(Measuring instruments)
(Electronic digital computers)

POPOV, Yu.A.; DAVYDOV, B.E.; SHISHKINA, M.V.; KRENTSEL', B.A.

Thermal conversions of polymeric Schiff bases. Izv. AN SSSR.
Ser. khim. no.11:2014-2019 N '63. (MIRA 17:1)

1. Institut neftekhimicheskogo sinteza AN SSSR.

Popov, Yu. A.

AID Nr. 972-34 21 May

NEW POLYMERIC SCHIFF BASES AND THEIR ELECTROPHYSICAL PROPERTIES (USSR)

Davydov, B. E., B. A. Krentsel', Yu. A. Popov, and L. V. Prokof'yeva.
Vysokomolekulyarnyye soyedineniya, v. 5, no. 3, Mar 1963, 321-324.

S/190/63/005/003/004/024

New polymeric Schiff bases with conjugated bonds and with a hetero atom in the backbone have been synthesized by polycondensation of p-phenylenediamine (PPDA) with 2,3-butanedione (I), terephthalaldehyde (II), or glyoxal (III). The polycondensation products of PPDA and I (polymer $\Pi-1$), II ($\Pi-2$), or III ($\Pi-3$) are black, brown, or yellow powders, respectively. All three are soluble in sulfuric acid, and $\Pi-1$ and $\Pi-2$, in formic and phosphoric acids also. IR spectra indicate $=C-C=$ bonds and a 1,4-substituted benzene ring in $\Pi-1$ and $\Pi-3$ and a methyl radical in $\Pi-1$. X-ray analysis shows that $\Pi-1$ and $\Pi-2$ have a crystalline structure and that $\Pi-3$ is amorphous. $\Pi-3$ emits a single, narrow EPR signal indicating the delocalization of electrons in the system of

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AID Nr. 972-34 21 May

NEW POLYMERIC SCHIFF BASES [Cont'd]

S/190/63/005/003/004/024

conjugated bonds; Π -1 and Π -2 emit no EPR signals. Heat treatment of Π -1, Π -2, and Π -3 for 4 hrs resulted in the following losses in weight: at 250°C, 12.87, 3.56, and 20.9%; and at 300°C, 17.20, 5.16, and 27.40%, respectively. Heat-treated Π -1 and Π -2 emit a single, narrow EPR signal, probably because of further polycondensation, which results in a longer polyconjugation chain. The electrical conductivity (σ) of the synthesized substances is related to temperature by

$$\sigma = \sigma_0 e^{-\Delta E/2kT}.$$

σ varied from $1.8 \cdot 10^5 \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ for Π -2 to $3.2 \cdot 10^{-4} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ for thermally treated Π -3; σ_0 varied from $2.5 \cdot 10^{-11} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ for thermally treated Π -3 to $1.1 \cdot 10^{-18} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ for Π -1. The study was carried out at the Institute of Petrochemical Synthesis, Academy of Sciences USSR. [BAØ]

Card 2/2

POPOV, Iu. A., inzh.

Thermal conditions of small streams. Transpstroï 13 no. 11:
47-48 N '63. (MIRA 17:5)

POPOV, Yu.A.

New subfamily of back swimmers (Heteroptera) from the Mesozoic
of Transbaikalia. Paleont. zhur. no.2:63-71 '64. (MIRA 17:7)

1. Paleontologicheskii institut AN SSSR.

POPOV, Yu.A.; SUMAROKOV, L.N.; KHETAGUROV, Ya.A.

Matrix methods for accelerating arithmetic operations in a digital computer. Izv.vys.ucheb.zav.; prib. 7 no.6:48-53 '64. (MIRA 18:2)

1. Moskovskiy inzhenerno-fizicheskiy institut. Rekomendovana kafedroy universal'nykh vychislitel'nykh mashin.

POPOV / ¹¹⁶~~110~~ A.

"Some questions concerning the evolution of water bugs (Hemiptera)."
report submitted for 12th Intl Cong of Entomology, London, 8-16 Jul 64.

POPOV, Yu.A.

New and little-known true bugs (Heteroptera) from Central Asia.
Zool. zhur. 43 no.5:695-703 1964. (RIZA 1021)

1. Paleontologicheskii Institut AN SSSR, Moscow.

L 42038-65 EWT(d)/EED-2/EWP(1) Pg-4/Pk-4/Pq-4 IJP(c) GG/BB

UR/0286/65/000/007/0132/0132

ACCESSION NR: AP5010950

AUTHORS: Sumarokov, L. N.; Popov, Yu. A.

TITLE: Matrix device for multiplication and addition. ^{1/6} Class 42, No. 169881

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 7, 1965, 132

TOPIC TAGS: multiplier circuit, summator

ABSTRACT: This Author Certificate presents a matrix device for multiplication and addition containing functional semisummaters. To speed the multiplication operation the semisummaters "sum" output of the i -th digit of the j -th line of the semisummaters is connected to one of the semisummaters inputs of the i -th digit of the j -1-st line. The semisummaters "transfer" output of the i -th digit of the j -th line is connected to the semisummaters inputs of the $i + 1$ -st digit of the $j + 1$ -st and $j + 2$ -nd lines (for j odd) and to the inputs of the $i + 1$ -st digit of the $j + 1$ -st line (for j even).

ASSOCIATION: none

SUBMITTED: 03Jul63

NO REF SOV: 000

Card 1/1 (11)

ENCL: 00

OTHER: 000

SUB CODE: DP, EC

L 12033-65

ACCESSION NR: AP5010955

UR/0286/65/000/007/0133/0134

AUTHORS: Sumarokov, L. N.; Popov, Yu. A.; Suslov, R. M.

TITLE: Parallel summator. Class 42, No. 169886

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 7, 1965, 133-134

TOPIC TAGS: summator

ABSTRACT: This Author Certificate presents a parallel summator (see Fig. 1 on the Enclosure). To reduce the summation time, it contains a transfer network in two groups, each consisting of two transfer lines. The summator digits corresponding to these groups, which are necessary for performing the digital operations under the stored codes, are connected to the transfer lines. The number of codes in the lines for each group corresponds to the cases of the presence and absence of the transfer signal into the lowest digit of this group. The leading digits of the transfer lines of all groups are connected to the inputs of logic circuits for code selection from the corresponding transfer line of the following group. Orig. art. has: 1 diagram.

ASSOCIATION: none

Card 1/1

SUBMITTED 11 JUL 63

L 59538-65

ACCESSION NR: AP5016826

UR/0364/65/001/006/0702/0706
541.136

AUTHOR: Alekseyev, Yu. V.; Popov, Yu. A.

TITLE: Motion of a tricomponent gas mixture in a capillary adjacent to a surface on which an electrochemical reaction occurs

SOURCE: Elektrokhimiya, v. 1, no. 6, 1965, 702-706

TOPIC TAGS: tricomponent gas mixture, capillary motion, electrochemical reaction

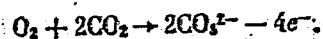
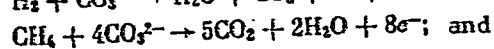
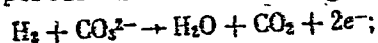
ABSTRACT: A general mathematical treatment is given for the motion of a tricomponent gas mixture in a capillary in which an electrochemical reaction takes place at the wall. Depending on the molar ratio of gaseous reactants to products, the flow rate within the capillary is accelerating or decelerating. The treatment allows one to define the convective diffusion of a multicomponent gas mixture which is pertinent to the theory of porous electrodes. Furthermore, it allows one to assess the maximum electrical current of an electrode in a single capillary, and to define dependence of maximum current upon the external gas pressure, electrode temperature, dimensions of capillary, and nature of the gases. A detailed treatment is given for

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L 59538-65

ACCESSION NR: AP5016826

three cases of practical importance in the theory of high temperature fuel cells. The cases involve reactions which take place when hydrogen, methane, or air and CO_2 are contacted with a porous electrode submerged in molten carbonates:



For the case of a mixture of air with CO_2 (at 1 atm, about 1000°K, capillary diameter 0.015 cm, and capillary length of about 0.5 cm) the maximum electrical current generated in a single capillary is calculated at 1.64 ma. "The authors thank N. A. Fedotov and N. A. Aladzhakov for suggesting the topic of this work." Orig. art. has: 25 formulas.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 23Nov64

ENCL: 00

SUB CODE: GC

NO REF SOV: 000

OTHER: 001

Card 2/2 *llc*

L 50548-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EMP(j)/T/EWA(h) Pz-6/Pc-4/Pr-4/
 Pt-7/PpR IJP(s) AT/RM UR/0190/65/007/005/0835/0842
 ACCESSION NR: AP5013057

AUTHOR: Popov, Yu. A.; Davydov, B. E.; Kubasova, N. A.; Krentsel', B. A.;
 Konstantinov, I. I.

TITLE: Synthesis and properties of polymeric Schiff bases 9

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 5, 1965, 835-842

TOPIC TAGS: organic semiconductor²¹, semiconducting polymer, polymeric Schiff base,
 electrical property

ABSTRACT: Ten new polymeric Schiff bases have been synthesized and their chemical structure, morphology, and principal properties have been studied (see Table 1 of the Enclosure). The synthesis involved the polycondensation of p-phenylenediamine or 2,6-diaminopyridine with various dicarboxylic compounds in glacial acetic acid under mild conditions which substantially prevented side reactions. The polymers were yellow to black materials, in some cases infusible up to 400C, showing high-ohmic semiconductor properties. For the polymeric Schiff bases which are continuously conjugated, the activation energy for conduction was 1.7-2.6 ev, and for those in which conjugation was disrupted by hetero atoms and -CH₂- groups, this energy was 3.1-3.6 ev. Pyrolysis of the polymers at 150-500C under vacuum was

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L 50548-65

ACCESSION NR: AP5013057

studied and hypotheses as to the chemical reactions causing changes in electrical properties (tabulated in the source) were advanced. In the 400—500C range, these changes were attributed to molecular rearrangement to form three-dimensional conjugated systems. EPR spectroscopy showed that all the polymers gave a narrow signal (7×10^{14} — 1×10^{18} spin/g). A substantial effect of oxygen adsorption on electrical properties was demonstrated, usually consisting in a drop in electrical conductivity and a rise in activation energy. Orig. art. has: 2 figures, 2 tables, and 1 formula. [SM]

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR (Institute of Petrochemical Synthesis, AN SSSR)

SUBMITTED: 01Jul64

ENCL: 02

SUB CODE: 00,GC

NO REF SOV: 007

OTHER: 003

ATD PRESS: 4007

Card 2/4

L 50548-65

ACCESSION NR: AP5013057

ENCLOSURE:

Q1

Table 1. Some properties of polymeric Schiff bases

	Formula	Color	Yield, %	Source of poly- meres	Mol. wt. from end group determination	Mol. wt. by viscous method	Crystal- lizing	IR, cm ⁻¹	NMR sig- nal, spin/g
I	$O=[CH-CH=N-C_6H_4-N]_n-CH-CHO$	dark brown	45.00	3	300	-	amorphous	1.9 7.3 · 10 ⁻⁴	1 · 10 ⁴
II	$O=[CH-CH=N-C_6H_4-N]_n-CH-CHO$	same	21.00	1	440	500	same	1.1 1.7 · 10 ⁻⁴	1.5 · 10 ⁴
III	$O=[C(CH_2CH_2)-C=N-C_6H_4-N]_n-C(CH_2CH_2)-CHO$	" "	17.00	6	900	1000	" "	1.0 1.5 · 10 ⁻⁴	1.0 · 10 ⁴
IV	$O=[C(CH_2CH_2)-C=N-C_6H_4-N]_n-C(CH_2CH_2)-CHO$	grey	20.00	5	900	1200	" "	1.0 1.5 · 10 ⁻⁴	1.7 · 10 ⁴
V	$O=[C(CH_2CH_2)-C=N-C_6H_4-N]_n-H$	yellow	20.00	1	1000	1100	crystalline m.p. 228-229°C	1.0 1.5 · 10 ⁻⁴	2.5 · 10 ⁴
VI	$O=[C(CH_2CH_2)-C=N-C_6H_4-N]_n-H$	same	20.00	3	900	900	crystalline	1.0 1.5 · 10 ⁻⁴	1.5 · 10 ⁴
VII	$O=[CH-CH=CH-CH=N-C_6H_4-N]_n-CH-CH=CH-CHO$	dark brown	20.00	3	900	-	amorphous	1.0 1.5 · 10 ⁻⁴	1.5 · 10 ⁴

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L 50548-65

ACCESSION NR: AP5013057

ENCLOSURE: 02

Table 1. Some properties of polymeric Schiff bases (Cont.)

Formula	Color	Yield, %	mp or softening point, °C	wt. % from Schiff base	mp, °C	Crystal- lizing	dn 20	dn 20 cm ⁻¹	IR sig- nal, cm ⁻¹
VIII 	black	20.00	4	1000	1000	same	1.3	1.5 · 10 ⁻⁴	1 · 10 ³
IX 	yellow	45.00	3	800	—	crystalline	1.4	7.0 · 10 ⁻⁴	1.5 · 10 ³
X 	same	20.00	3	800	—	amorphous	2.1	2.0 · 10 ⁻⁴	3.7 · 10 ³
XI 	violet	20.00	3	1000	1000	crystalline, m.p. 110—115°C	2.0	1.2 · 10 ⁻⁴	1.5 · 10 ³
XII 	gray	10.00	3	800	770	same, m.p. 115—117°C	2.0	1.5 · 10 ⁻⁴	2.5 · 10 ³
XIII 	brown	20.00	11	1000	670	same, m.p. 115—117°C	2.1	2.0 · 10 ⁻⁴	7 · 10 ³

me
Card 4/4

PROTOPOPOV, A.N., kand. med. nauk; POPOV, Yu.A.

Bilateral single-stage bronchography in children. Vest. rent.
i rad. 40 no.2:44-47 Mr-Apr '65. (MIRA 18:6)

1. Kafedra rentgenologii i radiologii (zav.- prof. V.N. Shtern)
Saratovskogo meditsinskogo instituta.

L 24931-65 EWT(d)/EPF(n)-2/ Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/P1-4 IJP(o)
WW/BC

ACCESSION NR: AP4045340

S/0103/64/025/009/1263/1272

AUTHOR: Popov, Yu. B. (Moscow)

TITLE: Some problems of performance in the analytical design of optimal controllers

SOURCE: Avtomatika i telemekhanika, v. 25, no. 9, 1964, 1263-1272

TOPIC TAGS: controller analytical design, automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: Application of N. G. Chetayev's theory ("Stability of Motion, Gostekhizdat, 1956) to the problems of optimal-controller analytical design is considered. Specifically, it is proven that by judicious selection of weight coefficients of the optimizing functional, the transient-process attenuation time can be reduced. For an automatic-control system $\dot{\eta} = D\eta$, where η is an n-variate vector of phase coordinates and D is an (n x n)-variate matrix of

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L 24931-65

ACCESSION NR: AP4045340

coefficients, two types of problems are solved: (1) with $D = \text{const}$, and (2) with $D = D(t)$. "In conclusion, the author wishes to thank A. M. Letov for his help in preparing the article." Orig. art. has: 5 figures and 55 formulas.

ASSOCIATION: none

SUBMITTED: 09Dec63

ENCL: 00

SUB CODE: IE

NO REF SOV: 017

OTHER: 000

Card 2/2

MALYSHEV, I.V.; POPOV, Yu.B.; ROZOV, B.S.

Logarithmic pulse amplifier. Prib. i tekhn. eksp. 10 no.1:114-116 Ja-P
'65. (MIRA 18:7)

LIVKINA, Ye.G.; POPOV, Yu.B.; KATSEVA, Ye.I.

Duration of preserving enzymatic variability in *Salmonella*.
Antibiotiki. 10 no.5:450-451 My '65. (MIRA 18:6)

1. Kafedra mikrobiologii (zav. - prof. Ye.G.Livkina) Khabarovskogo
meditsinskogo instituta.

L 2379-66 EWT(1)/EWA(j)/EWA(h)-2/ JK

ACCESSION NR: AP5020499

UR/0297/65/010/008/0740/0742
576.851.49.097.22:615.779.9

AUTHOR: Popov, Yu. B.

TITLE: Salmonella resistance development to antibiotics

SOURCE: Antibiotiki, v. 10, no. 8, 1965, 740-742

TOPIC TAGS: microorganism contamination, immunity, penicillin, streptomycin, neomycin, tetracycline, intestinal disease

ABSTRACT: Development of resistance to levomycetin, tetracycline, neomycin, and monomycin was studied in 10 strains of S. paratyphi and S. typhimurium cultures as well as in 12 unicellular cultures isolated from these strains. All 22 cultures were investigated through 80 passages in media containing increased concentrations of the antibiotics, and sensitivity of cultures was determined at regular periods from the 2d to 70th passage. Following the 80th passage, culture sensitivity to levomycetin, tetracycline, neomycin, and monomycin and also to chlortetracycline, penicillin and streptomycin was compared to control cultures. Findings show that resistance of salmonella cultures to neomycin and monomycin is highest and

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L 2379-66

ACCESSION NR: AP5020499

2
develops fastest, resistance to levomycetin is lower and develops more slowly, and resistance to tetracycline is lowest. Cross resistance developed within two groups of preparations. The first group consisted of levomycetin, tetracycline, and chlortetracycline and the second group consisted of neomycin, monomycin, and streptomycin. No significant differences were found between antibiotic resistance development of ordinary salmonella cultures and unicellular cultures. Thus, these data do not support the hypothesis offered in the literature that simple selection plays an important role in development of resistance to antibiotics. Orig. art. has: 1 table.

ASSOCIATION: Kafedra mikrobiologii Khabarovskogo meditsinskogo instituta (Microbiology Department of the Khabarovsk Medical Institute)

SUBMITTED: 18May64

ENCL: 00

SUB CODE: LS 55

NR REF SOV: 006

OTHER: 015

bvk

Card 2/2

L 2016-66 EWT(1)/EWA(j)/EWA(b)-2 JK

ACCESSION NR: AP5020500

AUTHOR: Popov, Yu. B. 15

UR/0297/65/010/008/0742/0744
576.851.49.097.3.095.5 : 26
615.779.9 23

TITLE: Serologic variations of salmonella properties induced by antibiotics 6, 44, 52

SOURCE: Antibiotiki, v. 10, no. 8, 1965, 742-744

TOPIC TAGS: bacteria, intestinal disease, bacterial disease, bacterial antigen, blood serum, antibiotic, neomycin, tetracycline, drug effect

ABSTRACT: Antibiotic resistance development was first investigated in 10 strains of S. paratyphi and S. typhimurium cultures and in 12 unicellular cultures isolated from these strains (described in an earlier article), and then the serologic shifts induced by levomycetin, tetracycline, and neomycin were investigated in the same 22 cultures. Serologic variations were determined by agglutination tests on the 2d, 5th, 10th, 20th, 30th, 40th, 50th, 60th, 70th, and 80th passages of the cultures with increased concentrations of antibiotic added to the medium. Findings show that the three

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Card 2/2 31

Учен. зап. Кн.-б. Учен. зап. Кн.-б.

Учен. зап. Кн.-б. Учен. зап. Кн.-б. protection of salmonella under
the... (MIRA 13:9)

... (prof. Ye. I. Isvkina) Khabarovskogo
... .

FCPOV, Yu.S.

Rate of the development of antibiotic resistance in *Salmonella*.
Antibiotiki 10 no.8:740-742 Ag '65. (MIRA 13.9)

1. Kafedra mikrobiologii (zav.— prof. Ye.G. Liskina) Kharkovskogo
meditsinskogo instituta.

POLOV, Yu.B. (Moskva)

Analytical design of an optimum controller for stabilizing
the angular position of vertical take-off and landing apparatus.
Avtom. i telem. 25 no.4:452-462 Mr '64. (MIRA 17:6)

L 41145-65 EWT(d)/ENP(1) Po-4/Pn-4/Pg-4/Pk-4/Pl-4 IJP(e) BC
ACCESSION NR: AP4035070 S/0103/64/025/004/0452/0462

AUTHOR: Popov, Yu. B. (Moscow)

TITLE: Analytical design of an optimum controller intended for stabilizing the angular position of a VTOL system

SOURCE: Avtomatika i telemekhanika, v. 25, no. 4, 1964, 452-462

TOPIC TAGS: VTOL system, VTOL system stabilization, VTOL angular position stabilization, VTOL optimum controller, aircraft automation

ABSTRACT: The problem of analytical design is solved by setting up a Lyapunov optimum function and applying the principles of dynamic programming (Bellman). Equations of perturbed motion of the vertical takeoff and landing (VTOL) system with respect to the center of gravity are set up. Necessary general and sufficient optimality conditions are formulated. Two functional equations of the optimized control are set up and solved; the Sylvester criterion is tested and areas of its

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L 41145-65

ACCESSION NR: AP4035070

realizability are plotted. The method of synthesizing is illustrated by a nonlinear autopilot with a rigid feedback whose gear ratios have been found from the optimality conditions specified by a functional. Recommendations for selecting the weight constants of the functional are given. A block diagram of the optimized-controller design is presented. "The author wishes to thank A. M. Letov for the problem statement and a discussion of the present work."

Orig. art. has: 9 figures and 42 formulas.

ASSOCIATION: none

SUBMITTED: 06Jun63

ENCL: 00

SUB CODE: AC, IE

NO REF SOV: 007

OTHER: 001

Card 2/2

POPOV, Yu.B. (Moskva)

Some aspects of control quality in problems of analytical
design of optimum controllers. Avtom. i telem. 25 no.9:
1263-1272 S '64. (MIRA 17:10)

L 53885-65 EWT(1)/EWA(j)/EWA(b)-2 JK
ACCESSION NR: AP5012902

UR/0297/65/010/005/0450/0451 18
576.851.49.095.3:615.779.9+ 8
615.779.9-092.257:576.851.49.095.3

AUTHOR: Livkina, Ye. G. (Professor, Head, Microbiology Department); Popov, Yu. B.
Katseva, Ye. I.

TITLE: Persistence of enzymic variability in Salmonella

SOURCE: Antibiotiki, v. 10, no. 5, 1965, 450-451

TOPIC TAGS: antibiotic, microorganism, salmonella, enzyme

ABSTRACT: The authors have studied the stability of characteristics in 32 variants of *S. paratyphi* B and *S. typhimurium* that originated in the course of adaptation of 106 passage strains to 5 antibiotics (levomycetin, streptomycin, chlortetracycline, oxytetracycline, and mycerin). Variants completely deprived of the capacity to produce gases under the action of levomycetin and mycerin were very stable. Two non-gas-producing variants *S. paratyphi* A isolated from the blood of patients proved to be highly stable over a 7 year period of observation; both

Card 1/2

L 53885-65

ACCESSION NR: AP5012902

were serologically typical and differed from each other only in degree of sensitivity to streptomycin and oxytetracycline. All the variants studied were maintained for a long time on media without antibiotics; the most resistant were also subjected to passage through bile and chick embryos.

ASSOCIATION: Kafedra mikrobiologii Khabarovskogo meditsinskogo instituta (Department of Microbiology, Khabarovsk Medical Institute)

SUBMITTED: 18Jun64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

30064-65 EXT(1)/EWAC(1) Feb S/0120/65/000/001/0114/0116
ACCESSION NR: AP5007038

AUTHOR: Malyshev, I. V.; Popov, Yu. B.; Rozov, B. S.

TITLE: Logarithmic pulse amplifier

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 114-116

TOPIC TAGS: amplifier, transistorized amplifier, logarithmic amplifier, pulse amplifier

ABSTRACT: The forward branch of a D808 semiconductor diode obeys the logarithmic law within 10^{-6} - 10^{-2} amp. Static characteristics of two diodes selected from a lot of 15 coincide with the log curve within 2% at 20, 40, and 60C. The pulse characteristics deviate somewhat more. The log amplifier circuit consists of a Goulding two-transistor current amplifier (Nucleonics, 1959, 17, no. 6, 64) whose tenfold amplified output is applied to a D808 log diode, a two-transistor voltage amplifier, and a switching transistor. An oscillogram shows a front-rise time of about 0.3 usec which characterizes the speed of operation. Orig. art. has: 4 figures and 7 formulas.

Cord 1/3

POPOV Yu. D.
POPOV, Yu.D., kand.med.nauk

Diagnosis of achylia. Vrach. delo no.12:1341 D '57. (MIRA 11:2)

1. Kafedra gospi'tal'noy terapii (zav. - prof. T.T.Glukhen'kiy)
L'vovskogo meditsinskogo instituta.
(BEER) (MEDICAL TESTS)
(STOMACH--SECRETIONS)

POPOV, Yu. D., dotsent

Clinical significance of a test beer breakfast. Vrach. delo no.7:
27-32 J1 '62. (MIRA 15:7)

1. Kafedra terapii (zav. - prof. T. T. Glukhen'kiy) pediatri-
cheskogo fakul'teta Kiyevskogo meditsinskogo instituta.

(BEER) (STOMACH—SECRETIONS)

POPOV, Yu.D.
POPOV, Yu.D. (L'vov)

Beer test meal. Klin.med. 35[i.e.34] no.1 Supplement:17 Ja '57.
(MIRA 11:2)

1. Iz kafedry gosital'noy terapii (zav. - prof. T.T.Glukhen'kiy)
L'vovskogo meditsinskogo instituta (dir. - prof. L.N.Kuzmenko)
(MEDICAL TESTS)
(STOMACH--SECRECTIONS) (BEER)

POPOV, Yu.D., dotsent (Kiyev)

Determination of uropepsin and other functions of the gastric glands. Klin. med. 41 no.7:46-51 J1'63 (MIRA 16:12)

1. Iz kafedry terapii (zav. - prof. T.T.Glukhen'skiy) peditricheskogo fakul'teta Kiyevskogo meditsinskogo instituta.

POPOV, YU. D.

Popov, Yu. D. -- "Clinicoexperimental characterization of a Beer Test Breakfast." Lvov State Medical Inst, Lvov, 1955 (Dissertation for Degree of Doctor of Medical Sciences.)

SO: Knizhnaya Letopis', No. 23, Moscow, Jun 55, pp 87-104

GLUKHEN'KIY, T.T., prof.; POPOV, Yu.D.; REVIATSKAYA, A.P.

Treatment of hypertension with mistletoe preparations. Vrach.
delo no.7:25-26 J1 '60. (MIRA 13:7)

1. Kafedra terapii pediatricheskogo fakul'teta (zaveduyushchiy -
prof. T.T. Glukhen'kiy) Kiyevskogo meditsinskogo instituta i
kafedra tekhnologii lekarstvennykh i galenovykh preparatov (zave-
duyushchiy - prof. G.A. Karpenko) L'vovskogo meditsinskogo insti-
tuta.

(HYPERTENSION) (MISTLETOE--THERAPEUTIC USE)

POPOV, Yu. D.

✓ The mechanism of the effect of beer on gastric secretion.
Yul. D. Popov (Med. Inst., Lvov). *Voprosy Pitaniya* 15,
No. 5, 60-69 (1956). Russian. Abstracts in Russian.

was 100% with the stomach full. The amount of food and the feeding rate were not significantly different between the two groups. The feeding of the signal beer was 10% higher, and the digestive power was 10% higher. As based on the chem. composition of beer and on its nutritive value, the signal beer was found to be more nutritive than the control beer.

Plain Hospital Therapy -

SOURCE CODE: UR/0188/66/000/005/0116/0118

ACC NR: AP6036167

AUTHOR: Levitin, R. Z.; Popov, Yu. F.

ORG: Department of General Physics for Biologists (Kafedra obshchey fiziki dlya biologov)

TITLE: The ΔE effect of the antiferromagnets NiO and CoO in strong pulsed magnetic fields

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 5, 1966, 116-118

TOPIC TAGS: antiferromagnetic material, nickel compound, cobalt compound, oxide, critical magnetic field

ABSTRACT: Inasmuch as earlier experimental investigations of the ΔE effect in antiferromagnets were limited to fields below the critical value, the authors describe a procedure for measuring the ΔE effect in pulsed magnetic fields and present results obtained in fields comparable with the critical field. The pulsed field was produced by discharging a capacitor bank through a solenoid. Fields up to 150 kOe with pulse duration 7 - 10 msec could be produced. The ΔE effect was measured with apparatus based on the resonant compound-oscillator method. The measurements were made at frequencies 150 - 200 kcs and in fields with durations 7 - 10 msec. The ΔE effect was measured at different temperatures from 293 to 170K, using liquid nitrogen for cooling. The results show that the ΔE effect of NiO is positive and increases rapidly

UDC: 538.65

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ACC NR: AP6036167

with increasing field. At $T = 293K$ the ΔE effect growth slows down in fields 130 - 150 kOe. In the case of CoO, the ΔE effect also has a strong field dependence. At $T = 258K$ and in fields of ~ 50 kOe, the ΔE effect reverses sign. It was impossible to measure the ΔE effect of CoO in fields stronger than 50 - 70 kOe, because of a sharp increase in Young's modulus. The results are in agreement with the theory, except for the ΔE effect of NiO in fields of 130 - 150 kOe at 293K. This is attributed to saturation of the "domain" ΔE effect. The domain effect may also be the reason why the ΔE effect could not be observed in strong fields in CoO at the Neel point (293K). It is concluded that measurements of single-crystal multidomain samples are necessary to explain the nature of the ΔE effect observed in cubic antiferromagnets. The authors thank Professor K. P. Belov for valuable advice and a discussion of the results. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 20// SUBM DATE: 14Jan65/ ORIG REF: 004/ OTH REF: 001

Card 2/2

Galvanomagnetic properties of indium antimonide doped with elements from the first and second groups, in the temperature interval 4.2 to 300°K. K. I. Vinogradova, D. N. Nasledov, Yu. G. Popov, Yu. S. Smetannikova.

Electrical properties of doped crystals of indium antimonide in a wide range of temperatures and impurity concentration. V. V. Galavanov, D. N. Nasledov, A. S. Filipchenko.
(Presented by V. V. Galavanov--15 minutes). .

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

KOZHINA, I.I.; POPOV, Yu.G.; TOIFACHEV, S.S.

Solid solutions in the system titanium - sulfur. Vest. LGU 19
no.22:115-120 '64 (MIRA 18:1)

NASLEDOV, D.N.; POPOV, Yu.G.; SMETANNIKOVA, Yu.S.

Oscillations of the intrinsic photoconductivity and photomagnetic
effect in n-InSb. Fiz. tver. tela 6 no.12:3728-3730 D '64
(MIRA 18:2)

1. Fiziko-tekhnicheskii institut imeni Ioffe AN SSSR, Leningrad.

ACC NR: ~~AT6033574~~ SOURCE CODE: ~~UR/01151/66/0005/010/2853/2858~~

AUTHOR: Nasledov, D. N.; Popov, Yu. G.; Smetannikova, Yu. S.; Yassiyevich, I. N.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-
tekhnicheskiy institut AN SSSR)

TITLE: Intrinsic photoconductivity and photomagnetic effect in p-InSb following
electron heating

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 2853-2858

TOPIC TAGS: photoconductivity, indium compound, antimonide, photomagnetic effect,
carrier lifetime, relaxation process, *electron energy*

ABSTRACT: In view of the fact that earlier research has not established conclusively
whether the optically induced oscillations of the photomagnetic effect and of the
photoconductivity are connected with the oscillatory dependence of the lifetime of
the nonequilibrium carriers or with heating of the carriers, the authors have carried
out a simultaneous investigation of the photoconductivity and the photomagnetic ef-
fect in p-InSb samples to prove that the oscillations are due to electron heating.
The photomagnetic and photoconductivity currents were measured at 5 - 8K using a
procedure described earlier (FTT v. 5, 5031, 1963). The p-type samples were obtained
by zone purification, and some of the samples were doped with copper to enhance the
oscillation effect. The test results shown that the connection between mobility and
the diffusion coefficients agrees in order of magnitude with the usual Einstein rela-

Card 1/2

ACC NR: AP6033544

tion, except that the crystal temperature must be replaced by the electron energy. The analysis has shown good agreement between this theory and the experimentally obtained spectral dependences of the photoconductivity and the photomagnetic effect at 6K. A method is proposed for determining the energy dependence of the lifetime and relaxation time of the nonequilibrium electrons from the form of the oscillation peaks of the photomagnetic effect. It is planned to obtain in the future a quantitative comparison of the experimental results with the theory. Orig. art. has: 3 figures and 21 formulas.

SUB CODE: 20/ SUBM DATE: 22Jan66/ ORIG REF: 003/ OTH REF: 006

Card 2/2

VINOGRADOVA, K.I.; NASLEDOV, G.N.; POPOV, Yu.G.; SMETANNIKOVA, Yu.S.

Electric properties of indium antimonide doped with various
impurities. Izv. AN SSSR. Ser. fiz. 28 no.6:959-962 Je '64.
(MIRA 17:7)

1. Fiziko-tekhnicheskii institut imeni Ioffe AN SSSR.

L 10884-65 EWT(1)/EWG(k)/EWT(m)/EEC(t)/EWP(b)/EWP(t) Pz-6 IJP(c)/AS(mp)-2/
ESD(t)/AFWL/ESD(gs)/SSD/RAEM(a) JD/AT s/0058/64/00C/008/E062/E062
ACCESSION NR: AR4046546

SOURCE: Ref. zh. Fizika, Abs. 8E481

AUTHORS: Nasledov, D. N.; Popov, Yu. G.

TITLE: Photomagnetic effect and photoconductivity in p-type InSb
and lifetimes at low temperatures

CITED SOURCE: Sb. Fizika. Dokl. na 22 Nauchn. konferentsii. Leningr.
inzh.-stroit. in-t. L., 1964, 8-12

TOPIC TAGS: photomagnetic effect, photoconductivity, carrier life-
time, indium antimonide, low temperature research

TRANSLATION: The stationary photomagnetic effect and the photocon-
ductivity of several samples of p-InSb with different concentrations
of impurities was investigated in the temperature range 100--7K.
The Hall coefficient and the electric conductivity of these samples

Card 1/2

L 10884-65

ACCESSION NR: AR4046546

were measured. The lifetimes τ_n of the electrons and τ_p of the holes were determined. It is found that τ_n is approximately three orders of magnitude smaller than τ_p over the entire temperature interval, and amounts to 10^{-10} -- 10^{-9} sec. With decreasing temperature, a monotonic increase in τ_n takes place, due to the decrease in the capture cross section at low temperatures and with the decrease in the thermal velocity of the electrons. With decreasing temperature, τ_p first increases, after which it begins to drop. The drop in τ_p is apparently due to the influence of the surface. F. Nad'.

SUB CODE: SS

ENCL: 00

Card 2/2

L 0077006 001(1)/001(1)/1/0000 10000 00/00/00-2
 SOURCE CODE: UR/0181/66/008/004/1110/1114 77
 16
 3

ACC NR: AP6012470

AUTHOR: Nasledov, D. N.; Popov, Yu. G.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-
 tekhnicheskii institut AN SSSR)

TITLE: Effect of structure defects on the electric properties of p-InSb at low tem-
 peratures 21 27

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1110-1114

TOPIC TAGS: crystal lattice structure, crystal defect, indium compound, antimonide,
 semiconductor band structure, temperature dependence, electric property, Hall effect,
 conductivity

ABSTRACT: To check on the hypothesis that InSb contains multiply charged defects
 which are responsible for the recombination of non-equilibrium carriers in it, and
 to ascertain the influence of such defects on the temperature dependence of the Hall
 coefficient in more highly compensated samples, the authors measured in the tempera-
 ture range 4-150K the temperature dependence of the Hall constant and of the dark and
 illuminated electric conductivities, using p-InSb samples with hole density $1-2 \times 10^{13}$
 cm^{-3} (at 77K). The preparation of the samples and the cryostat in which the measure-
 ments were made are described in an earlier paper (FTT v. 5, 3031, 1963). The mag-
 netic field used in the measurements was close to 3000 Oe. Three impurity levels
 were observed, lying at 0.12, 0.015, and 0.008 eV above the valence band. Analysis

Card 1/2

ACCESSION NR: APh034946

S/0181/64/006/005/1550/1552

AUTHORS: Mikhaylova, M. P.; Nasledov, D. N.; Popov, Yu. G.

TITLE: The photoelectric properties of n type InAs at low temperatures

SOURCE: Fizika tverdogo tela, v. 6, no. 5, 1964, 1550-1552

TOPIC TAGS: photoelectric effect, indium arsenide, semiconductor, low temperature, photomagnetic emf, photoconductivity, temperature dependence

ABSTRACT: This compound has been studied in detail previously at temperatures between 80 and 300K, but the literature has no information on the properties at lower temperatures. The authors studied the photoelectric and photomagnetic properties of single crystals of n-type InAs in the interval 7 to 80K. Investigations were made at various impurity concentrations. The electron mobility was observed to fall slightly with decline in temperature from 80 to 7K, approximately according to the law $T^{1/2}$. The authors measured the dependence of the photoconductivity on electrical field strength, of the photomagnetic emf on magnetic field strength at various temperatures, and the dependence of both on intensity of irradiation. It was found that the photoconductivity depends linearly on the electrical field strength up to fields of about 0.2 v/cm. Saturation is reached at

Card

1/2

ACCESSION NR: AP4034946

higher field strengths. The photomagnetic emf and photoconductivity also exhibit linear dependence on intensity of irradiation at all temperatures between 7 and 80K. It was found that the photomagnetic emf increases sharply (exponentially) with decrease in temperature down to about 20K, after which saturation was observed to 7K. In the same range the photoconductivity increases with decline in temperature at a much slower rate. The marked increase in photomagnetic emf may be due to increase in effective mobility of holes at low temperatures through participation of high-mobility holes, which have mobilities near those of electrons. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad
(Physicotechnical Institute, AN SSSR)

SUBMITTED: 21Dec63

ENCL: 00

SUB CODE: SS, EM

NO REF SOV: 001

OTHER: 003

Card

2/2

POPOV, Yu.G.

~~Specific features of the respiratory coefficient in certain yeasts.~~
Izv. AN Arm. SSR. Biol. i sel'khoz. nauki 11 no.7:63-70 11 '58.
(MIRA 11:9)

1.Otdel tekhnologii kormov i biokhimii Instituta zhivotnovodstva
i veterinarii Ministerstva sel'skogo khozyaystva ArmSSR.
(Yeast) (Respiration)

L 25665-65 EWT(m)/EWP(t)/EWP(b) LJP(c) JD
ACCESSION NR: AP5001584 S/0054/64/000/004/0115/0120

AUTHOR: Kozhina, I.I.; Popov, Yu. G.; Tolkachev, S.S.

TITLE: Solid solutions in the system titanium-sulfur

SOURCE: Leningrad. Universitet. Vestnik. Seriya fizika i khimii, no. 4, 1964, 115-120

TOPIC TAGS: titanium sulfide, titanium solid solution, titanium sulfur system, xray analysis, packing structure

ABSTRACT: The structure and phase composition of $\text{TiS}_{0.77}$ - $\text{TiS}_{1.97}$ titanium sulfides were studied experimentally to establish the existence and limits of homogeneous compositions and to investigate the results and conclusions of other workers. Homogenization of specimens prepared from high purity elements was achieved by 100-900 hr. heating at 1000-1050C. Samples containing less titanium than that corresponding to $\text{TiS}_{1.9}$ were heated to 900C to prevent decomposition. X-ray diffraction analysis revealed the existence of two regions of homogeneity and solid solutions. The first, existing within the composition limits $\text{TiS}_{0.77}$ - $\text{TiS}_{1.17}$, is based on the 9-layer, closely packed structure of the high temperature modification of TiS; the second, shown to exist within $\text{TiS}_{1.31}$ - $\text{TiS}_{1.97}$,

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L 25665-65

ACCESSION NR: AP5001E84

is based on the 4-layer close packing structure of the TiS_2 phase. The latter is shown to have the packing type of CdI_2 . Compounds of the composition Ti_3S_4 , whose structure has been determined by Hahn and Harder (Zs. anorg. allg. Chemie, 288, 241, 1956) and Wadsley (Acta cryst. 10, 715, 1957), should be considered as one of the solid solutions in the homogeneous region of the TiS_2 phase. Orig. art. has: 3 tables and 2 figures.

ASSOCIATION: None

SUBMITTED: 09Dec63

ENCL: 00

SUB CODE: IC, SS

NO REF SOV: 001

OTHER: 008

Card 2/2

L 57827-65 EWT(1)/EWT(m)/EEC(t)/EWP(b)/EWP(t) Pz-6 IJP(c) AT/JD
 ACCESSION NR: AR4049409 S/0275/64/000/009/A039/A039
 621.383.42 33
 B

SOURCE: Ref. zh. Elektronika i yeye primeneniye. Svodnyy tom, Abs. 9A25

AUTHOR: Maslakov, D. N.; Popov, Yu. G.

TITLE: Photomagnetic effect and photoconductivity in p-type InSb and lifetimes at low temperatures 21
 21-21

CITED SOURCE: Sb. Fizika. Dokl. na XXII Nauchn. konferentsii. Leningr. inzh.-stroit. in-t. L., 1964, 8-12

TOPIC TAGS: photomagnetic effect, photoconductivity, indium antimonide semiconductor, low temperature semiconductor behavior

TRANSLATION: The stationary photomagnetic effect and photoconductivity of a few p-InSb samples with various impurity concentrations were investigated within 100—7K. The Hall coefficient and conductivity of the specimens were measured. The lifetimes of electrons τ_n and holes τ_p were determined. It is found that τ_n within the entire temperature range is lower than τ_p by approximately 3 orders and is 10^{-10} — 10^{-9} sec. With lower temperatures, τ_n monotonously increases which is due to the decreased capture cross-section at low temperatures and to the

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L 57827-65

ACCESSION NR: AR4049409

decreased thermal velocity of electrons; r_p first increases with low temperatures and then falls off. The dropping of r_n [Translator's note: the Russian original is not clear] is apparently due to surface effects. Bibliography: 7 titles.

SUB CODE: EC, EM

ENCL: 00

lip
Card 2/2

ALTAYEV, Sh.A.; MUKUSHEV, M.N.; SMIRNOV, A.I.; FOROV, Yu.G.; NOVIKOV, V.Ya.

Analysis of coal losses in Karaganda Basin mines and ways of curtailing them. Nauch. trudy KNTI no.14:50-62 1964. (MIRA 13-4)

POPOV, Yu.G.

Mean heat capacity of solid solutions of $\text{FeO}_3\text{-Al}_2\text{O}_3$ at elevated temperatures. Vest. LGU 19 no.4:162-164 '64. (MIRA 17:3)

L 21721-65 EFP(m)/EFP(c)/EFP(t)/EFP(b) Prt LJP(c)/RSD/APZL/ASD(a)-5/
 ESD/AS(mp)-2/AFETR/RAEM(a)/ESD(g)/ESD(t) JD 3/34
 5/0048/64/028/008/0939/0962

ACCESSION NR: AP4041284

AUTHOR: Vinogradova K.I.; Popov Yu.G.; Smetannikova Yu.S.; Nasedov D.M.
 (Doctor of Physics-Mathematical sciences)

TITLE: Electric properties of indium antimonide doped with different impurities
 (Report, Third All-Union Conference on Semiconductor Compounds held in Kishinev
 18-21 September 1963.)

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v.28, no.6, 1964, 959-962

TOPIC TAGS: semiconductor, semiconductor research, electric properties, electric conductivity, Hall effect, temperature dependence, indium antimonide

ABSTRACT: The present study was undertaken in view of the paucity of data on the electric properties of doped indium antimonide and the location of impurity levels in such InSb crystals. The primary purpose of the investigation was to determine the position and effect of acceptor impurity levels. There were investigated primarily InSb crystals doped with Zn and Ca (elimination of which from InSb by zone refining is difficult) and Cu, which is a frequent contaminant. The impurities were introduced into the purified n-type indium antimony ingots by zone leveling immediately after the purification without opening the sealed tube containing the material.

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L 21721-65

ACCESSION NR: AP4041354

2

This precluded change from n-type to p-type conductivity, reported to occur as a result of some heat treatments. The measurements consisted in determining the temperature dependence of the conductivity and Hall constant in the range from 5 to 100°K. The measurements were made in helium gas in a metal cryostat with the temperatures being determined by a Brodley carbon/thermistor in the lower range and by a copper-constantan thermocouple in the high range. The temperature dependences are presented in the form of curves. The results of evaluation of the activation energy are given in a table. Orig.art.has: 2 formulas, 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskii institut im.A.F.Ioffe Akademii nauk SSSR (Physico-technical Institute, Academy of Sciences SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: SS,EM

HQ REF SOV: 002

OTHER:004

Card 2/2

ARIYA, S.M.; POPOV, Yu.G.

Structure of titanium and vanadium monoxide lattices. Zhur.ob.
Khim. 32 no.7:2077-2081 Il. '62. (MIRA 15:7)

1. Leningradskiy gosudarstvennyy universitet.
(Titanium oxides) (Vanadium oxides) (Crystal lattices)

NASLEDV, D.N.; POPOV, Yu.G.; SMETANNIKOVA, Yu.S.

Mechanism underlying the scattering of current carriers in
p-InSb at 80K. Fiz. tver. tela 6 no.11:3351-3356 N '62. (MIRA 18:1)

1. Fiziko-tekhnicheskii institut imeni A.F.Ioffe AN SSSR,
Leningrad.

ALIMAYEV, Sh.A. MUKUSHEV, M.N.; SMIRNOV, A.I.; POPOV, Yu.G.

Investigating the stressed state of the rock massif and interchamber
pillars by the photoelastic method. Nauch. trudy KNTSI no. 14-108-176
'64. (MIRA 18:4)

NASLEDOV, D.N.; POPOV, Yu.G.,

Photomagnetic effect in InSb at low temperatures. Fiz. tver. tela
5 no.10:3031-3033 O 1963. (MIRA 16:11)

L. Fiziko-tekhnicheskiy institut im. A.F. Ioffe AN SSSR, Lenin-
grad.

MIKHAYLOVA, N.P.; NASHENOV, O.N.; POPOV, Yu.G.

Photoelectric properties of n-InAs at low temperatures. Fiz.
tver. tela 6 no.3:1550-1552 My '64. (MIRA 17:9)

1. Fiziko-tekhnicheskii institut imeni A.F. Ioffe AN SSSR,
Leningrad.

L 11996-65 EWT(m)/EPF(c)/EWP(t)/EWP(b) Pr-4 IJP(c)/AFWL/ASD(a)-5/AFETR/
SSD/RAEM(a)/ESD(gs)/ESD(t) JD S/0181/64/006/011/3351/3356
ACCESSION NR: AP4048412

AUTHORS: Nasledov, D. N.; Popov, Yu. G.; Smetannikova, Yu. S. B

TITLE: The mechanism of carrier scattering in p-type InSb at 8°K 27-27

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3351-3356

TOPIC TAGS: carrier scattering, indium antimonide, photomagnetic current, Hall coefficient, electric conductivity, Hall mobility

ABSTRACT: An analysis is given of the data on the photomagnetic current at 8K as a function of the magnetic field ($B = 0.01--1 \text{ Wb/m}^2$) and illumination ($\lambda = 2\mu$) intensities ($10^{14}--10^{16} \text{ quanta.cm}^{-2}.\text{sec}^{-1}$), and on the temperature dependences (8--100K) of the Hall coefficient, electrical conductivity and Hall mobility for samples of zone-purified p-type InSb containing $10^{15}--10^{16} \text{ cm}^{-3}$ acceptors ($\rho = 10^{15}--10^{16} \text{ cm}^{-3}$ at liquid nitrogen temperature). From these data, the dominant scattering mechanism at helium temperatures was deduced by the method of

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L 11996-65

ACCESSION NR: AP4048412

A. R. Beattie and R. W. Cunningham (Phys. Rev., v. 125, 533, 1962). The photomagnetic effect indicated that in compensated samples the scattering on impurity ions predominated, while in uncompensated samples, the scattering on neutral impurities predominated. This result was confirmed qualitatively by the galvanomagnetic measurements. From the photomagnetic data the values of the electron Hall mobilities were determined for $B = 0$. They were 7.2×10^5 , 6.6×10^5 , and $6.4 \times 10^5 \text{ cm}^2 \cdot \text{v}^{-1} \cdot \text{sec}^{-1}$ for three different samples. The values of the lifetime τ_n and the surface recombination velocity S_n for electrons were found as a function of the nonequilibrium electron density Δn_0 . The value of τ_n fell on increase of Δn_0 . The absolute values of τ_n lay between 8×10^{-11} and $2 \times 10^{-9} \text{ sec}$. The dependence $S_n(\Delta n_0)$ was approximately the same as those reported by S. W. Kurnick and R. N. Zitter (J. Appl. Phys., v. 27, 278, 1956). The maximum value of S_n did not exceed $7 \times 10^4 \text{ cm/sec}$, i.e., it was less than found by Kurnick and Zitter at 80K. 0 fig. art. has: 6 figures, 1 table and 2 formulas.

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L 11996-65

ACCESSION NR: AP4048412

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. M. Ioffe, AN SSSR,
Leningrad (Physico-Technical Institute, AN SSSR)

SUBMITTED: 01Jun64

ENCL: 00

SUB CODE: SS, EN

NR REF SOV: 000

OTHER: 004

Card 3/3

L 16128-65 EWT(i)/EMG(k)/EEC(t) Pz-6 IJP(c)/ESD(t)/ESD(gs)/SSD/APWL/
ASD(a)-5/AS(mp)-2 AT
ACCESSION NR: AP5000687

S/0181/64/006/012/3728/3730

AUTHORS: Nasledov, D. N.; Popov, Yu. G.; Smetannikova, Yu. S.

TITLE: Oscillations of intrinsic photoconductivity and of the photo-
magnetic effect in n-type InSb ²¹

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3728-3730

TOPIC TAGS: indium antimonide, photoconductivity, photomagnetic
effect, electron phonon interaction, impurity band

ABSTRACT: The authors observed oscillations in the intrinsic photo-
conductivity and in the photomagnetic effect of n-type InSb at 8°K,
using the same measurement procedure, apparatus, and sample-prepara-
tion technology as described earlier (Fiz. v. 5, 5031, 1963). These
oscillations are similar to those observed by others at liquid-
helium temperatures and had the same period of oscillations (0.025
eV). The oscillations of the photomagnetic currents were much

Card 1/4

L 16128-65
ACCESSION NR: AP5000687

larger in amplitude than those of the photoconductivity. The spectral distributions of the two effects are shown in Figs. 1 and 2 of the Enclosure. The minima coincide approximately with the calculated minima of photoresponse for the case of interaction between non-equilibrium electrons and longitudinal optical phonons. The peak near the edge of the intrinsic absorption edge is attributed to other factors. It is concluded that to explain the observed effect it is necessary to make use of the model wherein the non-equilibrium electrons are captured by the donor impurity band (H. J. Stocker et al., Phys. Rev. Lett. v. 12, 163, 1964). Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskii institut im. A. F. Ioffe AN SSSR
(Physicotechnical Institute, AN SSSR)

SUBMITTED: 10Jul64

ENCL: 02

SUB CODE: IC, EM

NR REF SOV: 001

OTHER: 004

Card 2/4

L 16128-65

ACCESSION NR: AP5000687

ENCLOSURE: 01

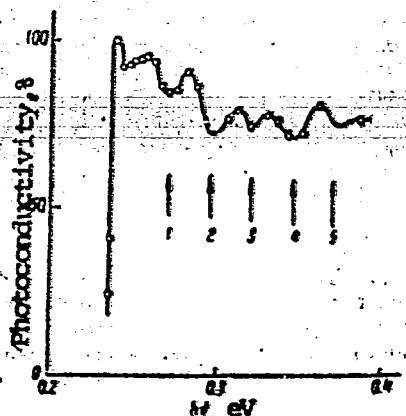


Fig. 1. Spectral distribution of photoconductivity in n-type InSb at 8°K

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L 16128-65

ACCESSION NR: AP5000687

ENCLOSURE: 02

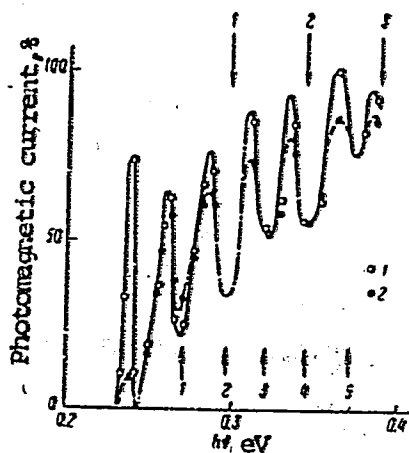


Fig. 2. Spectral distribution of the photomagnetic effect in n-type InSb at 8°K

Magnetic field intensity - 400 (1) and 4000 Oe (2).

Card 4/4

KONCVALOV, V.S., kand.tekhn.nauk; POPOV, Yu.I., inzh.

Problems of designing general plans and intrafactory transportation
at machinery plants. Prom. stroi. 40 [i.e. 41.] no.3:10-16 Mr
'63. (MIRA 16:3)

(Industrial plants—Design and construction)

POPOV, Yu.I., inshener; SHENDEROV, A.I., inshener; MARICHEV, V.P.,
inshener; SLIZKIY, P.I., inshener.

Excavators built by the Novo-Kramatorsk machinery building plant.
Gor.zhur. no.1:47-54 Ja '56. (MLRA 9:5)
(Excavating machinery)

Popov, Yu. I.

3802. EXCAVATORS FROM THE NOVO-KRAMATORSK MACHINE CONSTRUCTION WORKS.
Popov, Yu. I. et al. (Gorn. Zh. (Min. S., Moscow), Jan. 1956, 47-51).
Illustrated description, dimensions and performance figures are given for the
Esh-4/40 and Esh-6/60 walking dragline excavators with capacities of 4 and 6
cu. m respectively and of the EVC-15 track-mounted mechanical shovel with
15 cu. m capacity. (L).